

WE CLAIM:

1. An annular co-extrusion die for extruding multi-layer tubular plastic film, said die including:

inner die members stacked one upon another and having radially outwardly extending surfaces forming radially outwardly extending helical passages between respective pairs of inner die members,

an annular outer die member surrounding said stacked inner die members and forming a longitudinally extending annular passage therebetween for conveying plastic material from said radially outwardly extending helical passages to an annular extrusion orifice,

a lower inner die member having a first feed passage extending from a lower surface thereof to a substantially horizontal upper surface thereof at a position spaced from a central longitudinal axis of said longitudinally extending annular passage, said substantially horizontal upper surface having a first groove extending from the upper end of said first feed passage to said longitudinal axis,

an upper inner die member immediately above said lower inner die member having a substantially horizontal lower surface engaged with the substantially horizontal upper surface of said lower inner die member, said substantially horizontal lower surface having a second groove extending from the upper end of said first feed passage to said longitudinal axis and forming a second feed passage with said first groove,

said upper inner die member having a third feed passage extending substantially vertically upwardly from the lower substantially horizontal surface thereof at said longitudinal axis and in communication with said second feed passage, and

at least one fourth feed passage in said upper inner die member extending from an upper end of said third feed passage to the helical passages between said upper and lower inner die members.

2. An annular co-extrusion die according to claim 1 wherein the radially outwardly extending surfaces are inclined to the longitudinal axis of the die at an angle in the range of from about 5 to about 90 degrees.
3. An annular co-extrusion die according to claim 1 wherein the inner die members have a circumferentially extending series of vertically aligned substantially vertical passages for supplying cooling air to the inner side of tubular film extruded from the extrusion orifice.